



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/567,882	02/08/2006	Matthias Hoffmann	56817M521	2362
23363	7590	08/05/2008	EXAMINER	
CHRISTIE, PARKER & HALE, LLP			DIAZ, THOMAS C	
PO BOX 7068			ART UNIT	PAPER NUMBER
PASADENA, CA 91109-7068			4171	
MAIL DATE		DELIVERY MODE		
08/05/2008		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)
	10/567,882	HOFFMANN ET AL.
	Examiner Thomas Diaz	Art Unit 4171

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED. (35 U.S.C. § 133).

Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 07 July 2008.
 2a) This action is FINAL. 2b) This action is non-final.
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-37 and 82-87 is/are pending in the application.
 4a) Of the above claim(s) 38-81 is/are withdrawn from consideration.
 5) Claim(s) _____ is/are allowed.
 6) Claim(s) 1-37, 82-87 is/are rejected.
 7) Claim(s) _____ is/are objected to.
 8) Claim(s) 1-87 are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.
 10) The drawing(s) filed on 08 February 2006 is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) Notice of References Cited (PTO-892)
 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
 3) Information Disclosure Statement(s) (PTO/SB/08)
 Paper No(s)/Mail Date 10/10/2006/02/08/2006

4) Interview Summary (PTO-413)
 Paper No(s)/Mail Date. _____
 5) Notice of Informal Patent Application
 6) Other: _____

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of Group I, claims 1-37 and 82-87 in the reply filed on 06/04/2008 is acknowledged. The examiner notes that the applicant elected without providing arguments and therefore the examiner assumes the election was made without traverse. This restriction is made FINAL.

Drawings

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "indentation" from claim 28 and, the "separate reinforcement ring" from claim 33, must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate

changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

3. Claim 13 is objected to because of the following informalities: applicant recites "over a greater length that..." The word "that" should be the word "than". Appropriate correction is required.
4. Claim 33 is objected to because "the gearbox housing" should be "a gearbox housing" since the gearbox housing isn't mentioned in previous claims.
5. Claim 37 is objected to because the phrase "the gearbox housing" should be "a gearbox housing" since it wasn't mentioned in claim 1.
6. Claim 82 is objected to because the applicant recites "...has in the axial direction either side of the external toothed an end section..." and the wording is slightly confusing. Examiner recommends rewording the phrase. For example, adding "of" between "direction" and "either side".

Claim Rejections - 35 USC § 112

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claim 6, 7, 25, 27, 28, 32, 82, 86 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. (Note the dependent claims of the ones discussed below are included in the rejection.)

Regarding claim 6, applicant recites "...in the axial direction at either side..." The use of the word "either" is unclear as it could mean at both sides or just on one side. For purpose of examination the examiner will interpret the limitation to refer to just one side of the external toothng.

Regarding claim 7, applicant recites "at least one end section is preferably..." The use of the word "preferably" renders the claim indefinite because it is unclear whether the limitations following the word are positively recited. Examiner recommends omitting the word preferably.

Regarding claim 27 and 28, it is unclear whether the applicant is intending to recite a process of making the recesses ("is formed") claimed or if the applicant is defining the characteristics of the recess. Examiner notes that in product by process claims the process is given limited patentable weight.

Regarding claim 32, the applicant recites the element "the elastic elements" which lacks antecedent basis. Is the applicant referring to the element of claim 31? For

purpose of examination the examiner will interpret "the at least one element" of claim 31 to be the elastic element.

Claim Rejections - 35 USC § 102

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

10. Claims 1-8, 11, 12 are rejected under 35 U.S.C. 102(b) as being anticipated by Hamelin et al. (USP 4802374).

The reference numerals and explanations within parenthesis are related to the prior art.

Applicant claims an adjustable mechanism (see title of prior art) intended to be used for a motor vehicle seat comprising:

- a spindle nut (fig.4, 9a) interacting on one side with a threaded spindle (fig.5, 12a) and having an external surface with external toothing which engages another gearing element (fig.5 shows toothing on the spindle nut and the element 8a, worm gear, which interacts with the nut 9a),
- where the external toothing of the spindle nut is formed through radially inwardly pointing indentations and the tooth depth diminishes towards at least one axial end of the spindle nut (fig.5, 9a; the toothing is formed by such indentations and

the depth diminishes to one end. In particular, it diminishes to zero towards the end without toothng.).

Regarding claim 2, this is treated above in (fig.5, 9a; shows toothng descreases to zero to one end)

Regarding claim 3, the external toothng extends over only a part of the outer surface leaving at least one end section without external toothng (fig.5, 9a; shows a section without external toothng and thus the toothng only extends over a part of the outer surface).

Regarding claim 4, the axial end section of the nut without external toothng is formed substantially as a circular line (see fig.5,9a; the section without toothng is wraps circularly around the nut).

Regarding claim 5, the external toothng of the nut is formed by indentations in the external surface in relation to at least one end section of the nut (seen in fig.5, 9a).

Regarding claim 6, the nut having an end section without external toothng (fig.5, 9a; shows an end section without external toothng).

Regarding claim 7, the spindle nut has an external surface in the form of a cylinder sleeve and that the external toothng is formed by indentations where the diameter of the at least one end section is larger than or equal to the diameter of the external surface which is provided with indentations (fig.5, 9a; shows that the diameter of the spindle nut end section without toothng is larger or equal to the diameter of external surface with indentations).

Regarding claim 8, the spindle nut in the region of the external toothings does not project in the radial direction beyond the at least one end section (fig.5, 9a; the external toothings does not project in the radial direction beyond the end section without toothings).

Regarding claim 11, the spindle nut is made of plastics (col.9, lines 1-2).

Regarding claim 12, the further gearing element is a worm gear and the external toothings of the nut interacts with the worm gear (fig.5, 8a; is a worm gear and is used to drive the nut 9a as described in the abstract).

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

12. Claims 1, 6,7, 9,10, 13, 15-27, 29-32, 34, 36, 37, 82-86 are rejected under 35 U.S.C. 103(a) as being unpatentable over Taubmann et al. (WO9951456A1; using USP 7051986 as a translation of the PCT reference for discussing the rejection) in view of Hendrick (USP 2128483).

Examiner notes that the exact location of the discussed reference numerals or column and line numbers may not exactly correspond with the exact location in PCT document.

Taubmann et al. discloses the following:

Regarding claim 1, Taubmann et al. discloses an adjustable mechanism (see title) comprising a spindle nut (fig.4, 92) interacting on one side with a threaded spindle (fig.1, 5) and having an external surface with external toothing which engages another gearing element (fig.18 shows toothing on the spindle nut; fig. 4 and fig. 5 show the interaction between the worm (fig.4,91) and the spindle nut) and the spindle has external toothing as seen in fig.18.

Regarding claim 13, Taubmann et al. discloses the internal toothing of the spindle nut (fig.18, 92; has internal toothing that would extend greater in the axial direction than the external toothing that would be present at 92'.) associated with the spindle extends over a greater length in the axial direction than the external toothing so that the internal toothing extends axially up into at least one end section.

Regarding claim 15, Taubmann et al. discloses that the spindle nut and further gearing element (worm) are mounted in a gearbox housing (fig.5, 7).

Regarding claim 16, Taubmann et al. discloses that the gearbox housing is made of housing parts (seen in figure 4 which shows an exploded view of all the components).

Regarding claim 17, Taubmann et al. discloses that the housing parts are connected to one another through push-fit connections and are aligned relative to each other along all special directions (seen in figure 5, elements 76 are push fit into recesses provided on 71a and 71b and all the housing parts are aligned).

Regarding claim 18, Taubmann et al. discloses the gearbox housing comprising one or two pairs of opposing housing parts (fig. 5, 71a and b and 72a and b are two pairs of housing parts).

Regarding claim 19, Taubmann et al. discloses the gearbox housing comprises housing parts which have a U-shaped cross-section (fig.6, 71; a cross-section taken down the centerline of a vertical axis would yield a U-shape cross-section). It is noted that changing the shape of this housing would be well within the skill in the art.

Regarding claim 20, Taubmann et al. discloses the external parts (fig.6, 71) engaging round bearing parts (fig.7, 72) mounted opposite one another to support the spindle nut (fig.5).

Regarding claim 21, Taubmann et al. discloses the external housing parts surrounding bearing sections (fig.7, 74 or fig.5, 74a and b).

Regarding claim 22, Taubmann et al. discloses that the gearbox housing is comprised of plastics (col.4, lines 64-66; housing parts can be made of plastics).

Regarding claim 23, Taubmann et al. discloses bearing points or bearing openings for the spindle nut and further gearing element or worm (fig. 5, generally indicated by 74a and b and 73a and b).

Regarding claim 24, Taubmann et al. discloses a bearing collar which protrudes from the axial end sections of the spindle nut (fig.4, see 92 which clearly has bearing collars).

Regarding claim 26,29, and 30, Taubmann et al. discloses the gearbox housing has recesses (fig. 5, generally indicated by 74a and b and 73a and b) in the boundary walls for the spindle nut and further gearing element to engage.

Regarding claim 27, Taubmann et al. discloses that the recesses are formed through openings in the boundary walls (see same fig.5, 74a and b, 73a and b). The

examiner notes that the process of forming these recesses is not given patentable weight.

Regarding claim 31, Taubmann et al. discloses that between the gearbox housing and an associated holder (fig.4, 8) of the gearbox housing there is at least one element (fig.4, 10a and b) for acoustic uncoupling (col.3, lines 44-47). It is noted that bearing plates (fig.5 72a and b) could also act as uncoupling elements.

Regarding claim 32, Taubmann et al. discloses that the elements (fig.4, 10a and b) are made of one of rubber and plastic (claim 3 of US or claim 22 of PCT) which reads on an elastic element. It is noted that this claim is a product by process in which the element is made by injection moulded and the process is not given patentable weight.

Regarding claim 34, Taubmann et al. discloses that the housing parts can be connected to each other through laser welding (col.2, lines 23-26; or col.6, lines 10-13).

Regarding claim 36, as discussed above Taubmann et al. discloses these bearing plates and gearbox housing. This is a product by process claim and the process of making these components is immaterial to the patentability of the product.

Regarding claim 37, Taubmann et al. discloses a gearbox housing (discussed above) set in a holder of U-shaped cross-section (fig.2, 8) which can be fixed to an associated adjustable part (such as the seat or top rail 3 not shown in figures).

Regarding claim 83, Taubmann et al. discloses the housing parts as housing plates (they name the housing parts, housing plates).

Regarding claim 84, Taubmann et al. discloses that the bearing points as described above are in the form of bearing opens (see the same elements as above).

Regarding claim 85, Taubmann et al. discloses that the at least one element (fig.4, 10a or b) of claim 31 is in the form of a resilient member since it is made of rubber and plastic and designed to eliminate noise and compensate for tolerances.

Regarding claim 86, Taubmann et al. discloses the elastic elements as discussed above which can be made of plastic. As shown in the figure these elements are one piece and would be attached on the gear housing. This is a product by process claim so the process of making the element by injection moulding is not given patentable weight.

Taubmann et al. fails to disclose the following:

Regarding claim 1, Taubmann et al. is silent to the tooth depth of the external gear diminishing to at least one of the axial ends.

Regarding claim 6, Taubmann et al. is silent to the spindle nut having an axial end section without external toothing.

Regarding claim 7, Taubmann et al. is silent to the axial end section having a diameter being larger than or equal to the diameter of the external surface with indentations.

Regarding claims 9 and 10, Taubmann et al. is silent to the exact shape of the external tooth being globoid and having an involute profile in the middle section in the axial direction.

Regarding claim 25 and 82, Taubmann et al. is silent towards the axial ends of the spindle nut having a portion without tooth that defines a bearing.

It is clear that Taubmann et al. does not disclose the specific tooth claimed by the applicant.

Hendrick teaches the following:

Hendrick teaches a worm wheel that has the same toothing as claimed by applicant (fig.5 and fig. 6, element 47 and 51). The toothing is shaped in a globoid shape and has an involute profile in the middle section in the axial direction. In addition as seen in figure 5 the toothing does not extend all the way to the axial end sections. The diameter of the axial end sections is larger than or equal to the indented region. The end sections without toothing could provide for a bearing surface to supporting the worm wheel.

Hendrick teaches that this type of toothing provides a longer bearing surface and reduces backlash and noise.

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the spindle nut disclosed by Taubmann et al. with the gear teeth taught by Hendrick in order to provide a spindle nut with reduced backlash and smoother operation. In addition the axial ends without toothing could provide a bearing surface for supporting the spindle nut in the gearbox housing.

13. Claims 11, 33, 87 are rejected under 35 U.S.C. 103(a) as being unpatentable over Taubmann et al. (WO9951456A1; using USP 7051986 as a translation of the PCT reference for discussing the rejection) in view of Hendrick (USP 2128483), as applied to claim 1 above, and further in view of Hamelin et al. (USP 4802374).

The combination made of references above disclose the following:

Regarding claim 33, Taubmann et al. discloses a separate reinforcement ring (fig.4, 96) between the axial end of the spindle nut and a gearbox housing.

Regarding claim 87, Taubmann et al. discloses that the reinforcement ring (fig.4, 96) is mounted on the bearing collar as seen in figure 4.

The combination made of references above fail to disclose the following:

Regarding claim 11, the combination is silent to the spindle nut being made of plastic.

Hamelin et al. teaches the following:

Regarding claim 11, Hamelin et al. teaches that the spindle nut or nut wheel is made of plastic and is used for adjusting the seat position.

Therefore, it would have been obvious to one of ordinary skill in the art to modify the spindle nut disclosed by Taubmann et al. to be made of plastic as taught by Hamelin et al. The spindle nut would still provide the same predictable result of allowing translation of seat or element to be adjusted, regardless of the material of which it is made.

14. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Taubmann et al. (WO9951456A1; using USP 7051986 as a translation of the PCT reference for discussing the rejection) in view of Hendrick (USP 2128483), as applied to claim 1 above, and further in view of Hauser, Jr. (USP 4386893).

Regarding claim 14, the combination of Taubmann et al. and Hendrick is silent to the tooth thickness of the internal toothing of the spindle nut interacting with the threaded spindle being greater than the gap between each tooth.

Hauser, Jr. teaches using a tooth thickness that is greater than the gap between the meshing teeth (see fig.1) for the purpose of increasing bearing surface and thus increasing lubrication of a fluid film (see claim 1).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to change the shape of the internal toothing taught by Taubmann et al. to be thicker than the gap between the internal toothing and the threaded spindle in order to provide the predictable results of increasing the bearing surface. Furthermore, if a lubricant were added to the interface, the bearing would have more lubricating surface.

The examiner notes that although the prior art reference teaches this relationship between the thicknesses of the gear teeth on the external part of the gearing it would yield the same predictable results to apply it to the internal gear teeth of the spindle nut.

15. Claim 28 is rejected under 35 U.S.C. 103(a) as being unpatentable over Taubmann et al. (WO9951456A1; using USP 7051986 as a translation of the PCT reference for discussing the rejection) in view of Hendrick (USP 2128483), as applied to claim 26 above, and further in view of Segal (USP 2313776).

Regarding claim 28, the combination of Taubmann et al. and Hendrick above are silent to the recess being in form of an indentation.

Segal teaches a recess being in the form of an indentation in a boundary wall of a toilet paper holder for the predictable purpose of holding the spindle (fig.3, S).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the recess taught by Taubmann et al. to be in the form of an indentation instead of an opening in order to provide the same predictable result of supporting the spindle nut or other gearing element.

16. Claim 35 is rejected under 35 U.S.C. 103(a) as being unpatentable over Taubmann et al. (WO9951456A1; using USP 7051986 as a translation of the PCT reference for discussing the rejection) in view of Hendrick (USP 2128483), as applied to claim 34 above, and further in view of Muellich (USP 5893959).

Regarding claim 35, Taubmann et al. does disclose the use of laser welding to connect the parts of the housing and laser technology, as discussed above.

However, Taubmann et al. is silent to the external housing parts (fig.4, 71a and b) being transparent and the internal housing parts (fig.4, 72a and b) being non-transparent.

Muellich teaches the use of a transparent housing cover (fig.1, 8) and a non-transparent housing base (fig.1, 7) for allowing a laser beam to shine through the housing cover and create a weld with an inner surface of the housing base.

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the housing parts taught by Taubmann et al. by making the external housing parts transparent and the internal housing parts non-

transparent as taught by Muellich for the purpose of allowing the laser beam during laser welding to shine through the housing part and create a weld on the inner contact surfaces between the parts. Examiner notes that this would create a better weld than just welding the outside of these components.

Conclusion

17. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Prior art includes other adjustable mechanisms and similar gear toothing shapes to the applicant's claimed invention.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thomas Diaz whose telephone number is (571)270-5461. The examiner can normally be reached on Monday-Thursday 7:30am-6:00pm, Friday's off..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Larry Tarazano can be reached on (571)272-1515. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Ling-Siu Choi/
Primary Examiner, Art Unit 1796

Thomas Diaz
Examiner
Art Unit 4171